Essential Fish Habitat:

A Marine Fish Habitat Conservation Mandate for Federal Agencies

U.S. Caribbean

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Executive Summary

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) set forth a new mandate for NOAA's National Marine Fisheries Service (NMFS), regional fishery management councils (FMC), and other federal agencies to identify and protect important marine and anadromous fish habitat. The essential fish habitat (EFH) provisions of the Magnuson-Stevens Act support one of the nation's overall marine resource management goals - maintaining sustainable fisheries. Critical to achieving this goal is the maintenance of suitable marine fishery habitat quality and quantity. The Caribbean FMC, with assistance from NMFS, has delineated EFH for federally managed species within the U.S. Caribbean. As new FMPs are developed, EFH for newly managed species will be defined as well. Federal action agencies which fund, permit, or carry out activities that may adversely affect EFH are required to consult with NMFS regarding the potential impacts of their actions on EFH, and respond in writing to NMFS or FMC recommendations. In addition, NMFS and the FMCs may comment on and make recommendations to any state agency on their activities that may affect EFH. Measures recommended by NMFS or an FMC to protect EFH are advisory, not proscriptive.

On December 19, 1997, an interim final rule was published in the Federal Register. That rule specified procedures for implementation of the EFH provisions of the Magnuson-Stevens Act. A final rule subsequently was published on January 17, 2002 (67 FR 2343). The final rule, which contains two subparts, addresses requirements for fishery management plan (FMP) amendment, and details the coordination, consultation, and recommendation requirements of the Magnuson-Stevens Act.

Within the area encompassed by the NMFS Southeast Region, EFH has been identified for hundreds of marine species covered by 20 FMPs, under the auspices of the Gulf of Mexico, South Atlantic, or Caribbean FMC or the NMFS. The generic FMP amendment delineating EFH for species managed by the Caribbean FMC was completed in early 1999 and subsequently updated and revised in late 2005. In addition, EFH for highly migratory pelagic species managed by the NMFS has been identified and includes various coastal and offshore waters of Puerto Rico and the U.S. Virgin Islands.

Wherever possible, NMFS intends to use existing interagency coordination processes as the mechanism to accomplish EFH consultations for federal agency actions that may adversely affect EFH. Provided certain regulatory specifications are met, EFH consultations will be incorporated into interagency procedures established under the National Environmental Policy Act, Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, or other applicable statutes. If existing processes cannot adequately address EFH consultation requirements, appropriate new procedures could be developed in cooperation with the NMFS. Programmatic consultations may be implemented or General Concurrences may be developed when program or project impacts are individually and cumulatively minimal in nature. Moreover, NMFS will work closely with federal agencies on programs requiring emergency, expanded, or abbreviated individual project consultations.

An effective, interagency EFH consultation process is essential to ensure that federal actions are consistent with Magnuson-Stevens Act resource management goals. The NMFS will strive to work with action agencies to foster an understanding of EFH consultation requirements and identify the most efficient interagency mechanisms to fulfill agency responsibilities.

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Introduction

This document has been prepared by the Southeast Regional Office of NOAA's National Marine Fisheries Service (NMFS) to provide an overview of the essential fish habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and implementing rules. The following pages provide a brief legislative and regulatory background, introduce the concept of EFH, and describe consultation requirements. Consistent with elements of the NMFS' National Habitat Plan, Strategic Plan, and Habitat Conservation Policy, this document is intended to: provide a mechanism for information exchange; foster interagency discussion and problem-solving; and enhance communication and coordination among the NMFS, Caribbean Fishery Management Council (CFMC), and affected agencies of the U.S. Caribbean. Ultimately, improved interagency coordination and consultation will enhance the ability of the agencies, working cooperatively, to sustain healthy and productive marine fishery habitats.

Legislative and Regulatory Background

The 1996 amendments to the Magnuson-Stevens Act (excerpted at Appendix 1) set forth a new mandate to identify and protect important marine and anadromous fisheries habitat. The FMCs, with assistance from NMFS, are required to delineate EFH in fishery management plans (FMP) or FMP amendments for all federally managed fisheries. Federal action agencies which fund, permit, or carry out activities that may adversely affect EFH are required to consult with NMFS regarding potential adverse impacts of their actions on EFH, and respond in writing to NMFS and FMC recommendations. In addition, NMFS is directed to comment on local government activities that would impact EFH. Measures recommended to protect EFH by NMFS or an FMC are advisory, not proscriptive.

The purpose of addressing habitat in the Act is to further one of the nation's important marine resource management goals - maintaining sustainable fisheries. Achieving this goal requires the long-term maintenance of suitable marine fishery habitat quality and quantity. However, federal agencies that do not adopt EFH conservation recommendations must provide a written explanation setting forth the scientific basis for that decision. An effective EFH consultation process is essential to ensuring that federal actions are carried out in a manner consistent with Magnuson-Stevens Act resource management goals.

Guidance and procedures for implementing the 1996 amendments of the Magnuson-Stevens Act were provided through interim final rules established by the NMFS in 1997, as amended by final rules in 2002 (50 CFR Sections 600.805 - 600.930). These rules specify that FMP amendments be prepared to describe and identify EFH and identify appropriate actions to conserve and enhance those habitats. In addition, the rules establish procedures to promote the protection of EFH through interagency coordination and consultation on proposed federal and local (territory and commonwealth) actions.

EFH Designation

The Magnuson-Stevens Act requires that EFH be identified for all fisheries that are federally managed. This includes species managed by the FMCs under federal FMPs, as well as those managed by the NMFS under FMPs developed by the Secretary of Commerce. FMP authorities, along with species or species assemblages covered by the FMPs of the CFMC and NMFS in the U.S. Caribbean, are listed in Appendices 2 and 3. Because the listed species under the CFMC's authorities collectively occur throughout the areas managed by the CFMC, consideration of those species and life stages for which natural history data may be limited would not encompass a greater geographic area.

EFH is defined in the Magnuson-Stevens Act as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The rules promulgated by the NMFS in 1997 and 2002 further clarify EFH with the following definitions: **waters** - aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; **substrate** - sediment, hard bottom, structures underlying the waters, and associated biological communities; **necessary** - the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and **spawning, breeding, feeding, or growth to maturity** - stages representing a species' full life cycle. EFH may be a subset of all areas occupied by a species. Acknowledging that the amount of information available for EFH determinations will vary for the different life stages of each species, the rules direct the FMCs to use the best information available, to take a risk averse approach to designations, and to be increasingly specific and narrow in their delineations as more refined information becomes available.

General types of habitat designated as EFH by the CFMC are categorized in Appendix 4. Additional sources of information useful for preparing EFH assessments, or otherwise develop a greater understanding of EFH designations and federally managed fishery resources, are available through the NMFS and CFMC. Appendix 8 provides citations related to FMP amendments and environmental documents and identifies web sites containing information on the Magnuson-Stevens Act, the NMFS final rule for the implementation of EFH designation and consultation provisions, and data on specific managed fisheries and associated habitats. NMFS and CFMC points of contact are identified in Appendix 9.

The rules also direct FMCs to consider a second, more limited habitat designation for each species in addition to EFH. Habitat Areas of Particular Concern (HAPCs) are described in the rules as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. In general, HAPCs include high value intertidal and estuarine habitats, offshore areas of high habitat value or vertical relief, and habitats used for migration, spawning, and rearing of fish and shellfish. Areas identified as HAPC by the NMFS and the CFMC are presented in Appendix 5. For a complete description of designated HAPCs the reader should reference the appropriate FMP amendment and related environmental documentation. HAPCs are not afforded any additional regulatory protection under the Magnuson-Stevens Act; however, federal actions with potential adverse impacts to HAPCs will be more carefully scrutinized during the consultation process and will be subject to more stringent EFH conservation recommendations.

Designating the spatial and seasonal extent of EFH has taken careful and deliberate consideration by NMFS and the CFMC. The effort to identify and delineate EFH in the various fishery management plans was a rigorous process that involved advice and input by numerous state and federal agencies and the public at large. The Caribbean FMC has produced a generic management plan amendment, revised in 2005, to define and designate EFH for all fisheries managed by the council. Reference may

be made to Appendices 6 and 7 for summaries of many of the federally-managed species or species assemblages and the associated categories of EFH for each based on information provided by the CFMC and NMFS. These two appendices are intended to provide a summary of habitat and geographic information on species managed by the CFMC and highly migratory species managed by the NMFS, where EFH has been identified for the managed species or assemblage of species within oceanic, coastal, and estuarine habitats of the U.S. Caribbean. To review a definitive description of EFH, the reader should refer to the latest FMP amendment and supporting environmental documentation for species-specific descriptions of EFH.

Besides delineating EFH, the FMP amendment produced by the CFMC identifies and describes potential threats to EFH, which include threats from development, fishing, or any other sources. Also identified are recommend EFH conservation and enhancement measures. Guidelines used in the development of EFH amendment sections for each of these issues are included in the EFH rules.

The CFMC and other FMCs also are required to implement management measures to minimize, to the extent practicable, any adverse impacts to EFH caused by fishing gears. Those measures can include area closures, gear restrictions, seasonal restrictions, and various other measures designed to avoid or minimize degradation of EFH attributable to fishing activities. The CFMC has imposed various protective measures on some of the fisheries under its jurisdiction and is coordinating with the NMFS to identify and sponsor research necessary to determine where additional conservation measures might be appropriate.

To ensure that EFH designations are made using the most current scientific information, the EFH rules require that the designations be reviewed at least once every 5 years. Consistent with this requirement the Caribbean FMC and NMFS are continually evaluating new information relative to habitat requirements of managed fisheries.

EFH Consultations

In the regulatory context, one of the most important provisions of the Magnuson-Stevens Act for conserving fish habitat is that which requires consultation when an activity proposed by a federal agency may adversely impact areas designated as EFH. The consultation requirement of the Magnuson-Stevens Act direct federal agencies to consult with NMFS whether those activities are to be permitted, funded, or directly undertaken. The EFH rules define an **adverse affect** as "any impact which reduces quality and/or quantity of EFH...[and] may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions."

The consultation provisions have caused some concern among federal action agencies regarding potential increases in workload and the regulatory burden on the public. NMFS has addressed these concerns in the EFH rules by emphasizing and encouraging the use of existing environmental review processes and time frames. Provided the specifications outlined in the rules are met, EFH consultations should be incorporated into interagency procedures previously established under the National Environmental Policy Act, Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, or other applicable statutes.

To incorporate EFH consultations into coordination, consultation and/or environmental review procedures already required by other statutes, three criteria must be met:

(1) The existing process must provide NMFS with timely notification of the action;

(2) Notification of the action must include an *EFH Assessment* of the impacts of the proposed action as outlined in the EFH rules; and

(3) NMFS must have completed a written *finding* that the existing coordination process satisfies the requirements of the Magnuson-Stevens Act.

An *EFH Assessment* is a review of the proposed project and its potential impacts to EFH. As set forth in the final rule, *EFH Assessments* must include: (1) a description of the proposed action; (2) an analysis of the effects, including cumulative effects, of the action on EFH, the managed species, and associated species by life history stage; (3) the federal agency's views regarding the effects of the action on EFH; and (4) proposed mitigation, if applicable. If appropriate, the assessment should also include the results of an on-site inspection, the views of recognized experts on the habitat or species affects, a literature review, an analysis of alternatives to the proposed action, and any other relevant information.

Once NMFS learns of a federal or state activity that may have an adverse effect on EFH, NMFS is required to develop EFH conservation recommendations for the activity, even if consultation has not been initiated by the action agency. These recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH and are to be provided to the action agency in a timely manner. The Magnuson-Stevens Act also authorizes FMCs to comment on federal and state projects, and directs FMCs to comment on any project that may "substantially" impact EFH. The Magnuson-Stevens Act requires that federal agencies respond to EFH conservation recommendations of the NMFS and FMCs in writing and within 30 days (implementing regulations allow for establishing alternative time frames).

Consultations may be conducted through programmatic, general concurrence, or project specific mechanisms. Evaluation at a programmatic level may be appropriate when sufficient information is available to develop EFH conservation recommendations and address all reasonably foreseeable adverse impacts under a particular program area. General Concurrences can be utilized for categories of similar activities having minimal individual and cumulative impacts, but require periodic reporting of the approved activities. Programmatic and General Concurrence consultations minimize the need for individual project consultation in most cases because NMFS has determined that the actions will likely result in no more than minimal adverse effects, and conservation measures would be implemented. For example, NMFS might agree to a General Concurrence for the construction of docks or piers which, with incorporation of design or siting constraints, would minimally affect federally managed fishery resources and their habitats.

Consultations at a project-specific level are required when critical decisions are made at the project implementation stage, or when sufficiently detailed information for development of EFH conservation recommendations does not exist at the programmatic level. To facilitate project-specific consultations, NMFS and the action agency should discuss how existing review or coordination processes can be used to accomplish the EFH consultation. With agreement on how existing coordination mechanisms will be used, the NMFS will transmit a *findings* letter to the action agency describing the conduct of EFH consultation within existing project review frameworks. In 1999-2000, *findings* were established for interagency coordination of Department of the Army permitting and construction activities carried out in the U.S. Caribbean.

Project specific consultations must follow either the abbreviated or expanded procedures. Abbreviated consultations allow NMFS to quickly determine whether, and to what degree, a federal action may adversely impact EFH, and should be used when impacts to EFH are expected to be minor. For example, the abbreviated consultation procedure would be used when the adverse effect of an action or proposed

action could be alleviated through minor design or operational modifications, or the inclusion of measures to offset unavoidable adverse impacts.

Expanded consultations allow NMFS and a federal action agency the maximum opportunity to work together in the review of an activity's impact on EFH and the development of EFH conservation recommendations. Expanded consultation procedures must be used for federal actions that would result in substantial adverse effects to EFH. Federal action agencies are encouraged to contact NMFS at the earliest opportunity to discuss whether the adverse effect of a proposed action makes expanded consultation appropriate. In addition, it may be determined after review of an abbreviated consultation that a greater level of review and analysis would be appropriate and that review through expanded consultation procedures should be employed. Expanded consultation procedures provide additional time for the development of conservation recommendations, and may be appropriate for actions such as the construction of large marinas or port facilities, or activities subject to preparation of an environmental impact statement.

The Magnuson-Stevens Act mandates that a federal action agency must respond in writing to EFH conservation recommendations from NMFS and FMCs within 30 days of receiving such recommendations. The rules require that such a response be provided at least 10 days prior to final approval of the action, if a decision by the federal agency is required in fewer than 30 days and the proposed action is inconsistent with the recommendations of the NMFS, and allow consideration of other alternative time frames in which action agency responses may be provided. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NMFS conservation recommendations, the agency must explain its reasons for not following the recommendations, including the scientific rationale for any disagreements with NMFS over the anticipated effects of the proposed action and the measures needed to offset such effects.

The regulations provide an important opportunity to resolve critical and outstanding EFH issues prior to an action agency rendering a final decision. When an agency decision is inconsistent with NMFS conservation recommendations, the NMFS Assistant Administrator may request a meeting with the head of the action agency to further discuss the project and achieve a greater level protection of EFH and federally managed fisheries. The process for higher-level review of proposed actions is not specified in the regulations; rather it is to be addressed on an agency-by-agency basis. In keeping with NMFS's effort to minimize the regulatory burden of EFH consultation requirements, review by the Assistant Administrator and action agency representative should be streamlined and highly focused.

Conclusion

The EFH mandates of the Magnuson-Stevens Act represent an integration of fishery management and habitat management by stressing the dependency of healthy, productive fisheries on the maintenance of viable and diverse estuarine and marine ecosystems. Federal action agencies are required to consult with the NMFS whenever a construction, permitting, funding, or other action may adversely affect EFH. The EFH consultation process will ensure that federal agencies explicitly consider the effects of their actions on important habitats, with the goal of supporting the sustainable management of marine fisheries. The NMFS is committed to working with federal and state agencies to implement these mandates effectively and efficiently, with the ultimate goal of sustaining of the nation's fishery resources.

Appendix 1. Selected Text from the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1855 et seq)

SEC. 305. OTHER REQUIREMENTS AND AUTHORITY
104-297
(b) FISH HABITAT.

(1) (A) The Secretary shall, within 6 months of the date of enactment of the Sustainable Fisheries Act, establish by regulation guidelines to assist the Councils in the description and identification of essential fish habitat in fishery management plans (including adverse impacts on such habitat) and in the consideration of actions to ensure the conservation and enhancement of such habitat. The Secretary shall set forth a schedule for the amendment of fishery management plans to include the identification of essential fish habitat and for the review and updating of such identifications based on new scientific evidence or other relevant information.
(B) The Secretary, in consultation with participants in the fishery, shall provide each Council with recommendations and information regarding each fishery under that Council's authority to assist it in the identification of essential fish habitat, the adverse impacts on that habitat, and the actions that should be considered to ensure the conservation and enhancement of that habitat.
(C) The Secretary shall review programs administered by the Department of Commerce and ensure that any relevant programs further the conservation and enhancement of essential fish habitat.
(D) The Secretary shall coordinate with and provide information to other Federal agencies to further the conservation and enhancement of essential fish habitat.

(2) Each Federal agency shall consult with the Secretary with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat identified under this Act.

(3) Each Council--
(A) may comment on and make recommendations to the Secretary and any Federal or State agency concerning any activity authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by any Federal or State agency that, in the view of the Council, may affect the habitat, including essential fish habitat, of a fishery resource under its authority; and
(B) shall comment on and make recommendations to the Secretary and any Federal or State agency concerning any such activity that, in the view of the Council, is likely to substantially affect the habitat, including essential fish habitat, of an anadromous fishery resource under its authority.

(4) (A) If the Secretary receives information from a Council or Federal or State agency or determines from other sources that an action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by any State or Federal agency would adversely affect any essential fish habitat identified under this Act, the Secretary shall recommend to such agency measures that can be taken by such agency to conserve such habitat.
(B) Within 30 days after receiving a recommendation under subparagraph (A), a Federal agency shall provide a detailed response in writing to any Council commenting under paragraph (3) and the Secretary regarding the matter. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on such habitat. In the case of a response that is inconsistent with the recommendations of the Secretary, the Federal agency shall explain its reasons for not following the recommendations.

Appendix 2. Fishery Management Plans and Managed Species of the Caribbean Region.

Reef Fish Fishery Management Plan

almaco jack - *Seriola rivoliana*
Atlantic spadefish - *Chaetodipterus faber*
bar jack - *Caranx ruber*
bigeye - *Priacanthus arenatus*
black durgon - *Melichthys niger*
black jack – *C. lugubris*
black snapper - *Apsilus dentatus*
blackfin snapper - *Lutjanus buccanella*
Blackline tilefish - *Caulolatilus cyanops*
blue parrotfish - *Scarus coeruleus*
blue runner - *Caranx crysos*
bluestriped grunt - *Haemulon sciurus*
cardinal soldierfish - *Plectrypops retrospinis*
chalk bass - *Serranus tortugarum*
coney - *Epinephelus fulvus*
Creolefish - *Paranthias furcifer*
doctorfish - *Acanthurus chirurgus*
dog snapper – *L. jocu*
French grunt – *H. flavolineatum*
glasseye snapper - *Priacanthus cruentatus*
goliath grouper – *E. itajara*
gray angelfish - *Pomacanthus arcuatus*
gray snapper – *L. griseus*
graysby – *E. cruentatus*
greater amberjack - *Seriola dumerili*
greater soapfish - *Rypticus saponaceus*
hogfish - *Lachnolaimus maximus*
honeycomb cowfish - *Lactophrys polygonia*
horse-eye jack – *C. latus*
jolthead porgy - *Calamus bajonado*
lane snapper - *Lutjanus synagris*
lantern bass - *Serranus baldwini*
longspine squirrelfish - *Holocentrus rufus*
mahogany snapper – *L. mahogani*
margate - *Haemulon album*
midnight parrotfish - *Scarus coelestinus*
misty grouper – *E. mystacinus*
mutton snapper – *L. analis*
Nassau grouper – *E. striatus*
ocean surgeonfish – *A. bahianus*
ocean triggerfish - *Canthidermis sufflamen*
orangeback bass - *Serranus annularis*
pluma - *Calamus pennatula*
porkfish - *Anisotremus virginicus*
princess parrotfish - *Scarus taeniopterus*
queen angelfish - *Holacanthus ciliaris*
queen parrotfish – *S. vetula*
queen snapper - *Etelis oculatus*
queen triggerfish - *Balistes vetula*
rainbow parrotfish – *S. guacamaia*
red grouper – *E. morio*
red hind – *E. guttatus*
redband parrotfish - *Sparisoma aurofrenatum*
redfin parrotfish - *Sparisoma rubripinne*
redtail parrotfish – *S. chrysopterum*
rock hind – *E. adscensionis*

Reef Fish Fishery Management Plan (cont.)

sand diver - *Synodus intermedius*
sand tilefish - *Malacanthus plumieri*
schoolmaster – *L. apodus*
scrawled cowfish - *Lactophrys quadricornis*
scrawled filefish - *Aluterus scriptus*
sea bream - *Archosargus rhomboidalis*
sergeant major - *Abudefduf saxatilis*
sheepshead porgy - *Calamus penna*
silk snapper - *Lutjanus vivanus*
smooth trunkfish - *Lactophrys triqueter*
spotted goatfish - *Pseudupeneus maculatus*
spotted trunkfish – *L. bicaudalis*
squirrelfish - *Holocentrus adscensionis*
stoplight parrotfish - *Sparisoma viride*
striped parrotfish - *Scarus croicensis*
tiger grouper - *Mycteroperca tigris*
tobaccofish - *Serranus tabacarius*
tomtate - *Haemulon aurolineatum*
trunkfish – *L. trigonus*
vermilion snapper - *Rhomboplites aurorubens*
wenchman - *Pristipomoides aquilonaris*
white grunt – *H. plumieri*
whitespotted filefish – *Cantherhines macrocerus*
yellow goatfish - *Mulloidichthys martinicus*
yellow jack - *Caranx bartholomaei*
yellowedge grouper – *E. flavolimbatus*
yellowfin grouper - *Mycteroperca venenosa*
yellowtail snapper - *Ocyurus chrysurus*

Spiny Lobster Fishery Management Plan

spiny lobster - *Panulirus argus*

Queen Conch Fishery Management Plan

queen conch - *Strombus gigas*
Atlantic triton's trumpet - *Charonia variegate*
milk conch – *S. costatus*
cameo helmet - *Cassis madagascarensis*
roostertail conch – *S. gallus*
true tulip - *Fasciolaria tulipa*
West Indian fighting conch – *S. pugilis*
green star shell - *Astrea tuber*
hawkwing conch – *S. raninus*

Coral Fishery Management Plan

varied coral species and coral reef communities comprised of several hundred species

Appendix 3. Species Managed under the Federally Implemented (NMFS) Fishery Management Plans in the U.S. Caribbean.

Tuna

albacore - *Thunnus alalunga*
Atlantic bigeye - *T. obesus*
Atlantic bluefin - *T. thynnus*
Atlantic yellowfin - *T. albacares*
skipjack - *Katsuwonus pelamis*

Swordfish

swordfish - *Xiphias gladius*

Billfish

blue marlin - *Makaira nigricans*
sailfish - *Istiophorus platypterus*
white marlin - *T. albidus*
longbill spearfish - *Tetrapturus pfluegeri*

Large Coastal Sharks

basking shark - *Cetorhinus maximus*
great hammerhead – *Sphyrna mokarran*
scalloped hammerhead - *S. lewini*
smooth hammerhead - *S. zygaena*
white shark - *Carcharodon carcharias*
nurse shark - *Ginglymostoma cirratum*
bignose shark - *Carcharhinus altimus*
blacktip shark - *C. limbatus*
bull shark - *C. leucas*
Caribbean reef shark - *C. perezi*
dusky shark - *C. obscurus*
Galapagos shark - *C. galapagensis*
lemon shark - *Negaprion brevirostris*
narrowtooth shark - *C. brachyurus*
night shark - *C. signatus*
sandbar shark - *C. plumbeus*
silky shark - *C. falciformis*
spinner shark - *C. brevipinna*
tiger shark - *Galeocerdo cuvieri*
bigeye sand tiger - *Odontaspis noronhai*
sand tiger shark - *O. taurus*
whale shark - *Rhinocodon typus*

Small Coastal Sharks

Atlantic angel shark - *Squatina dumerili*
bonnethead - *Sphyrna tiburo*
Atlantic sharpnose – *R. terraenovae*
blacknose shark - *C. acronotus*
Caribbean sharpnose shark - *R. porosus*
finetooth shark - *C. isodon*
smalltail shark - *C. porosus*

Pelagic Sharks

bigeye sixgill shark - *Hexanchus vitulus*
sevengill shark – *Heptranchias perlo*
sixgill shark - *H. griseus*
longfin mako shark - *Isurus paucus*
porbeagle shark - *Lamna nasus*
shortfin mako shark - *I. oxyrinchus*
blue shark - *Prionace glauca*
oceanic whitetip shark - *C. longimanu*
bigeye thresher shark - *Alopias superciliosus*
common thresher shark - *A. vulpinus*

Appendix 4. Representative Categories of Essential Fish Habitat Identified in Fishery Management Plan Amendment of the Caribbean Fishery Management Council. (Generally, EFH for species managed under the NMFS Billfish and Highly Migratory Species plans falls within the marine and estuarine water column habitats designated by the Council)

Estuarine areas

Water column

Salt marshes

Mangrove wetlands

Intertidal flats/salt ponds

Sand and shell substrate

Live and hard bottoms

Mud flats

Sandy beaches

Rocky shores

Marine areas

Water column

Seagrass

Sand and shell substrate

Coral reefs

Algal plains

Live and hard bottoms

Appendix 5. Geographically Defined Habitat Areas of Particular Concern Identified in Fishery Management Plan Amendments of the Caribbean Fishery Management Council.

Reef Fish - Spawning Habitats

Puerto Rico
- Tourmaline Bank/Buoy 8
- Abrir La Sierra Bank/Buoy 6
- Bajo de Sico
- Vieques, El Seco

St. Croix
- Mutton snapper spawning aggregation area
- East of St. Croix (Lang Bank)

St. Thomas
- Hind Bank Marine Conservation District
- Grammanik Bank

Reef Fish - Ecologically Important Habitats

Puerto Rico
- Hacienda la Esperanza, Manití
- Bajuras and Tiberones, Isabela
- Cabezas de San Juan, Fajardo
- JOBANNERR, Jobos Bay
- Bioluminescent Bays, Vieques
- Boquerón State Forest
- Pantano Cibuco, Vega Baja
- Piñones State Forest
- Río Espiritu Santo, Río Grande
- Seagrass beds of Culebra Island (nine sites designated as Resource Category 1 and two additional sites)
- Northwest Vieques seagrass west of Mosquito Pier, Vieques

St. Thomas
- Southeastern St. Thomas, including Cas Key and the mangrove lagoon in Great St. James Bay
- Saba Island/Perseverance Bay, including Flat Key and Black Point Reef

St. Croix
- Salt River Bay National Historical Park and Ecological Preserve and Marine Reserve and Wildlife Sanctuary
- Altona Lagoon
- Great Pond South Shore Industrial Area
- Sandy Point National Wildlife Refuge

Coral Habitats

Puerto Rico
- Luis Peña Channel, Culebra
- Mona/Monito
- La Parguera, Lajas
- Caja de Muertos, Ponce
- Tourmaline Reef
- Guánica State Forest
- Punta Petrona, Santa Isabel
- Ceiba State Forest
- La Cordillera, Fajardo
- Guayama Reefs
- Steps and Tres Palmas, Rincon
- Los Corchos Reef, Culebra
- Desecheo Reefs, Desecheo

St. Croix
- St. Croix Coral Reef Area of Particular Concern, including the East End Marine Park
- Buck Island Reef National Monument
- South Shore Industrial Area Patch Reef and Deep Reef System
- Frederiksted Reef System
- Cane Bay
- Green Cay Wildlife Refuge

Appendix 6. Summary of EFH Requirements by Fishery Management Unit for Species Managed by the Caribbean Fishery Management Council.

Fishery Management Unit	Species Life stage	EFH
Spiny Lobster Fishery	phyllosome larvae	all waters from mean high water to the outer boundary of the EEZ
	other life stages	seagrass, benthic algae, mangrove, coral, and live/hard bottom substrates from mean high water to 100 fathoms depth
Queen Conch Fishery	eggs and larvae	all waters from mean high water to the outer boundary of the EEZ
	other life stages	seagrass, benthic algae, coral, live/hard bottom, and sand/shell substrates from mean high water to 100 fathoms depth
Reef Fish Fishery	eggs and larvae	all waters from mean high water to the outer boundary of the EEZ
	other life stages	all substrates from mean high water to 100 fathoms
Coral Fishery	larvae	all waters from mean low water to the outer boundary of the EEZ
	other life stages	coral and hard bottom substrates from mean low water to 100 fathoms depth

Appendix 7. Sources of EFH and Related Resource Information for the U.S. Caribbean.

Fishery Management Plans and Related Documents

Caribbean Fishery Management Council. 1998. Essential Fish Habitat (EFH) generic amendment to the Fishery Management Plans (FMPs) of the U.S. Caribbean including a draft environmental assessment. Caribbean Fishery Management Council. San Juan, Puerto Rico. 2 vols.

Caribbean Fishery Management Council. 2004. Final Environmental Impact Statement for the Generic Essential Fish Habitat Amendment to the Fishery Management Plans of the U.S. Caribbean. Caribbean Fishery Management Council. San Juan, Puerto Rico.

Caribbean Fishery Management Council. 2005. Amendment to the Fishery Management Plans (FMPs) of the U.S. Caribbean to Address Required Provisions of the Magnuson-Stevens Fishery Conservation and Management Act:

- Amendment 2 to the FMP for the Spiny Lobster Fishery of Puerto Rico and the U.S. Virgin Islands
- Amendment 1 to FMP for the Queen Conch Resources of Puerto Rico and the U.S. Virgin Islands
- Amendment 3 to the FMP for the Reef Fish Fishery of Puerto Rico and the U.S. Virgin Islands
- Amendment 2 to the FMP for the Corals and Reef Associated Invertebrates of Puerto Rico and the U.S. Virgin Islands

Including Supplemental Environmental Impact Statement, Regulatory Impact Review, and Regulatory Flexibility Act Analysis. San Juan, Puerto Rico.

National Marine Fisheries Service. 2009. Amendment 1 to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Marine Fisheries Service. Silver Spring, MD.

Caribbean Fishery Management Council
http://www.caribbeanfmc.com/

NOAA Fisheries Service – Southeast Region
http://sero.nmfs.noaa.gov/

NOAA Fisheries Service – Office of Habitat Conservation
http://www.habitat.noaa.gov

NOAA Fisheries Highly Migratory Species
http://www.nmfs.noaa.gov/sfa/hms/hmsdocument_files/FMPs.htm

Appendix 9. Points of Contact for Essential Fish Habitat Activities within the U.S. Caribbean.

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